

Y is the blow-off from the boiler, which wastes into a Y branch of the iron drain in the cellar.

**DRAINAGE OF THE FOUNDATION.**—The subsoil-water below the house is kept at a certain depth by laying small  $1\frac{1}{2}$ -inch tiles inside of the foundation walls to a little more than the required depth, say 2 or 3 feet. These pipes connect with the main drain, B in the figure, which discharges into a gravel-trap A, with a water-seal to prevent sewer-gas from entering the drain tiles and thus poisoning the ground under the house, in case a connection is made with the sewer. For the same reason the outlet pipe from the trap A should bend downwards into the water. Often this trap is made of large pipe which extends vertically up to the surface, and is protected by a grating, in order that the water-seal may be periodically inspected and cleaned.

The best practice is to lay subsoil drains along side the sewers into which drains like B discharge directly without the intervention of a trap, as no sewer-gas need then be feared.

The tile drains are laid with open joints, around which tarred paper or cloth may be wrapped to prevent the entrance of dirt.

In a country house the trap A is not needed, as the drain can generally be made to discharge at the surface at some lower level than the house is situated on.

In such case the mouth of the drain should be protected from wash by a foundation of stones properly laid and a grating of iron or earthenware should be placed in the mouth to prevent vermin from entering and obstructing the drain by building nests within it.

The roots of trees often enter drains through open joints and choke them up. Cementing the joints near the trees with asphalt must then be resorted to or the tree must be cut down.

In place of the tile drains mentioned, broken stone thrown to the bottom of the trench to a certain depth and covered up with earth, also box drains of wood, and pole drains, may be more cheaply constructed, but they cannot be regarded as at all permanent, as the broken stone drains finally fill up with earth and the wooden drains decay after a number of years.